



# Coastal Restoration in Plaquemines Parish



"Coastal Restoration in Plaquemines Parish must provide the proper balance to adequately protect the valuable wetland habitat while providing adequate flood protection for the residents of the parish."

*Billy Nungesser*  
Parish President







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The Levee System maintained by the Corps of Engineers protects less than 4% of the land mass in Plaquemines Parish - (Area Shown in Red)



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## Impacts of Selected Alignment of incorporation of Non Fed Levee into NOV

Reach		Non-wet BLH (Acres)	Non-wet BLH AAHUs	Marsh (Acres)	Marsh AAHUs	"Wet Pasture" (Acres)	Swamp AAHUs	Wetland BLH (Acres)	Wetland BLH AAHUs	Water Bottoms (Acres)
<b>NOV NF Reach 1</b>	Protected Side	463.81		0.00		0.00		114.69		
	Flood Side	97.16		77.32		0.00		84.82		
<b>NOV NF Reach 2</b>	Protected Side	166.70		0.00		527.86		18.76		
	Flood Side	0.00		0.00		84.39		0.32		
<b>NOV NF Reach 3</b>	Protected Side	0.00		0.00		0.00		0.03		
	Flood Side	0.00		8.58		0.00		14.49		
<b>NOV NF Reach 4</b>	Protected Side	0.00		0.00		538.52		0.00		
	Flood Side	0.00		0.00		112.73		0.08		
<b>NOV NF Reach 5</b>	Protected Side	21.48		0.00		0.00		0.00		
	Flood Side	0.00		28.82		0.00		0.00		
<b>Total</b>	<b>Protected Side</b>	<b>651.99</b>		<b>0</b>		<b>1066.38</b>		<b>133.48</b>		<b>0</b>
	<b>Flood Side</b>	<b>97.16</b>		<b>114.72</b>		<b>197.12</b>		<b>99.71</b>		<b>0</b>

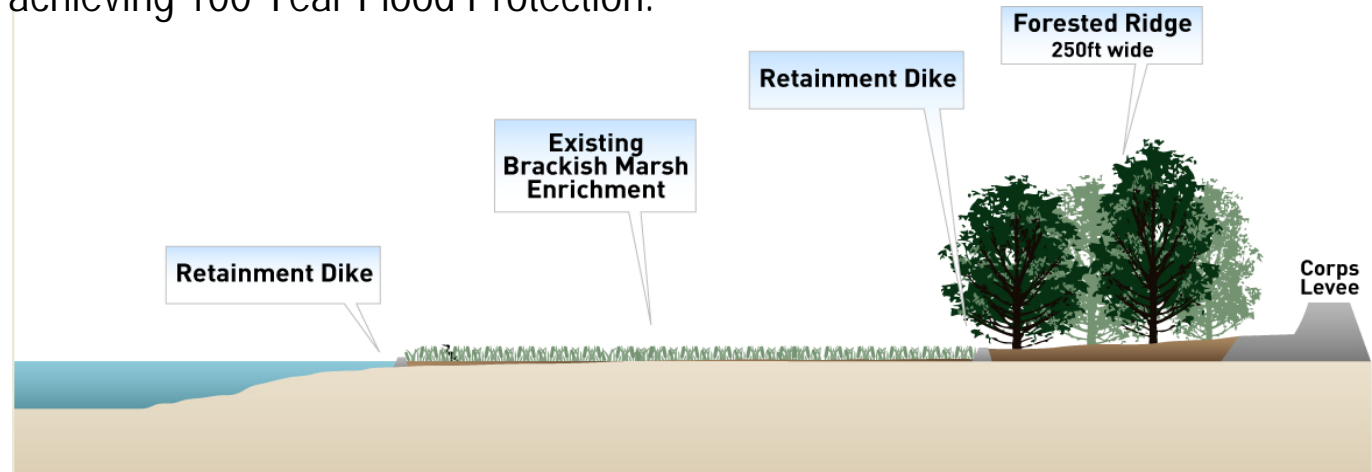
These Impacts can all be mitigated by the proposed mitigation plans in Plaquemines Parish in the following pages



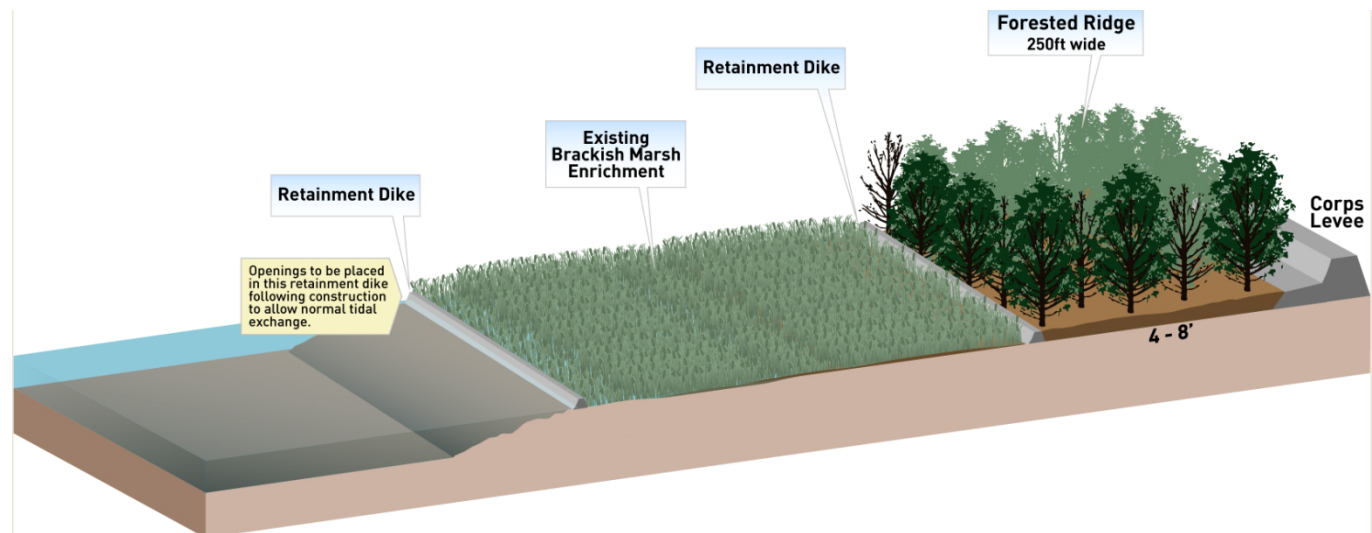
# Forested Ridge Design Concept: Current Option

Forested Ridge improvements result in the reduction of the wave action on top of Tidal Surge to a level below levee height, achieving 100 Year Flood Protection.

Cross-section



Oblique View







# Coastal Restoration in Plaquemines Parish

Coastal Restoration in Plaquemines Parish will include:

1. Maintaining adequate flood protection for residents

2. Providing "Forested Ridges" adjacent to levees

**Phase 1 (2 – 5 Years)**

3. Replenishment of wetlands areas

**Phase 2 (5 – 10 Years)**

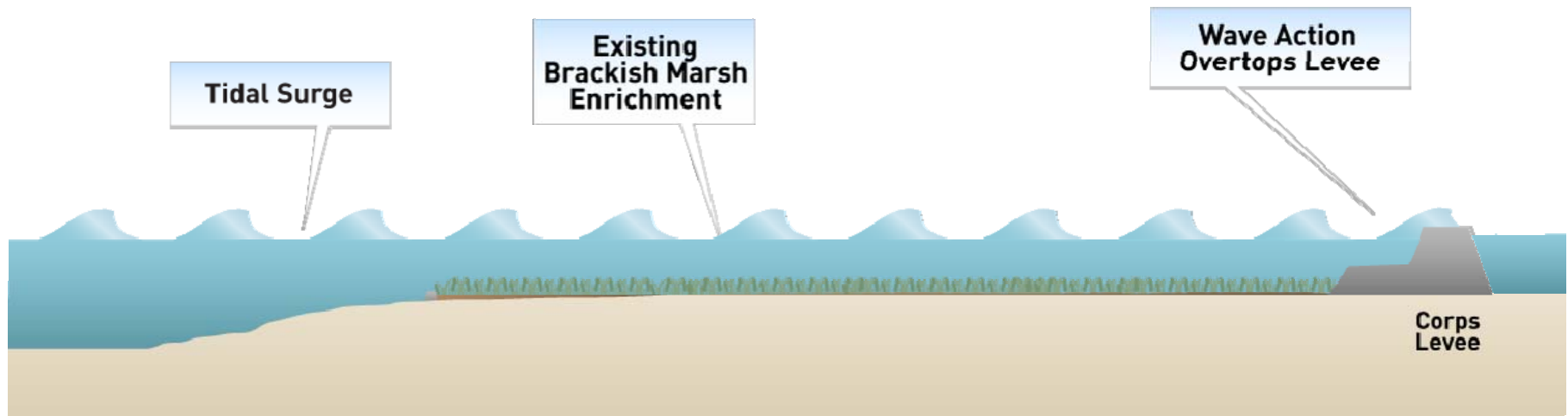
4. Redevelopment of the barrier islands

**Phase 3 (10 – 15 Years)**





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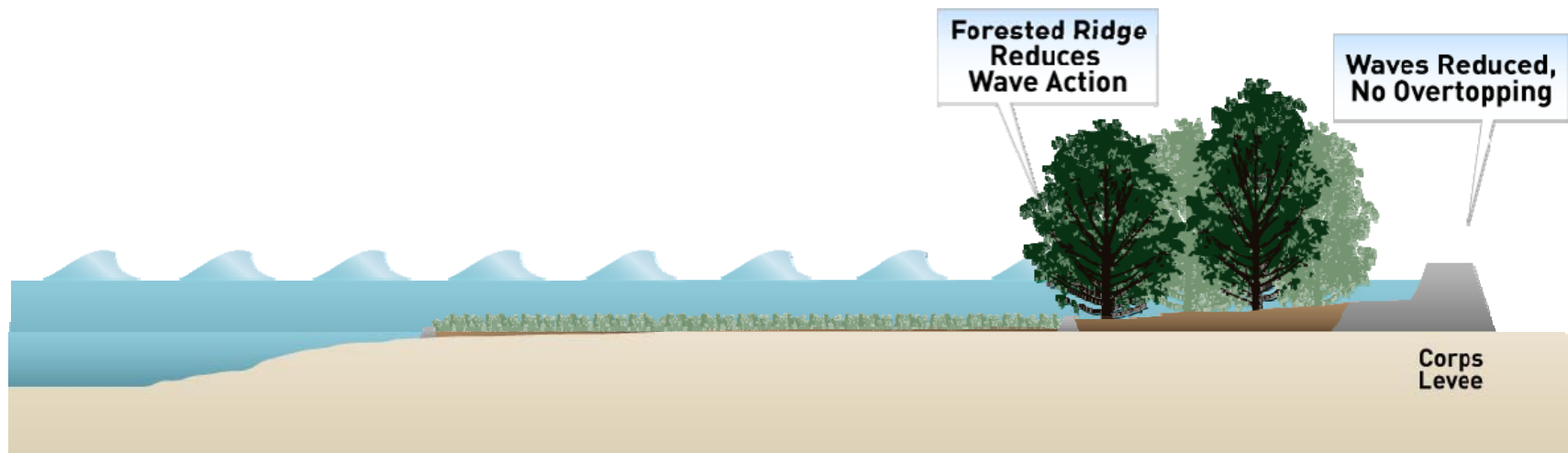


## Typical cross-section of existing marsh and levees in Plaquemines Parish

Cross-section of marsh and levee during typical hurricane conditions.  
Wave action occurring on top of Tidal Surge exceeds the levee height resulting in flooding within the levee system.



# Coastal Restoration in Plaquemines Parish



## Plaquemines Parish Plan

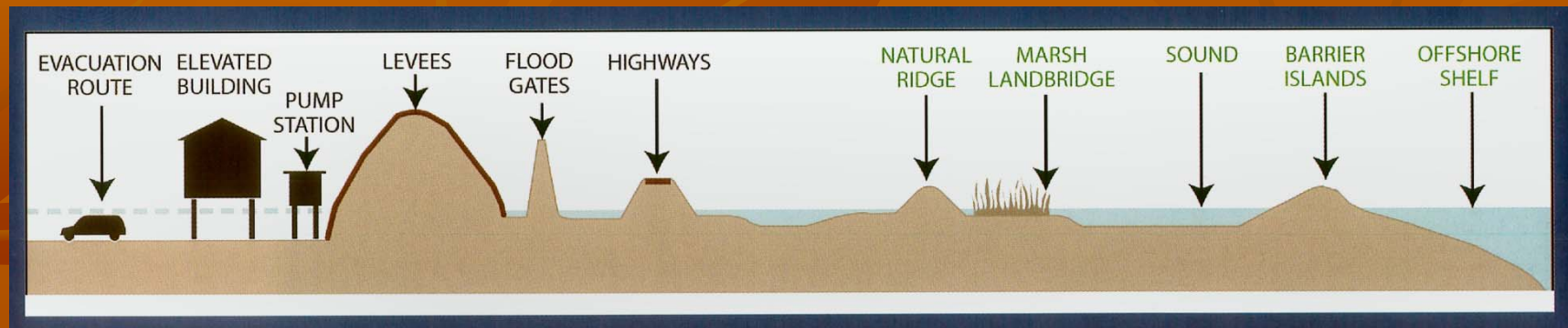
Research funded by the Plaquemines Parish Government in partnership with the Corps of Engineers' Engineer Research Development Center (ERDC) confirms that the placement of a "Forested Ridge" adjacent to the outside levee berm reduces wave action resulting in net reduction of storm surge elevation – ultimately meeting 100-year storm protection requirements.





# Coastal Restoration in Plaquemines Parish

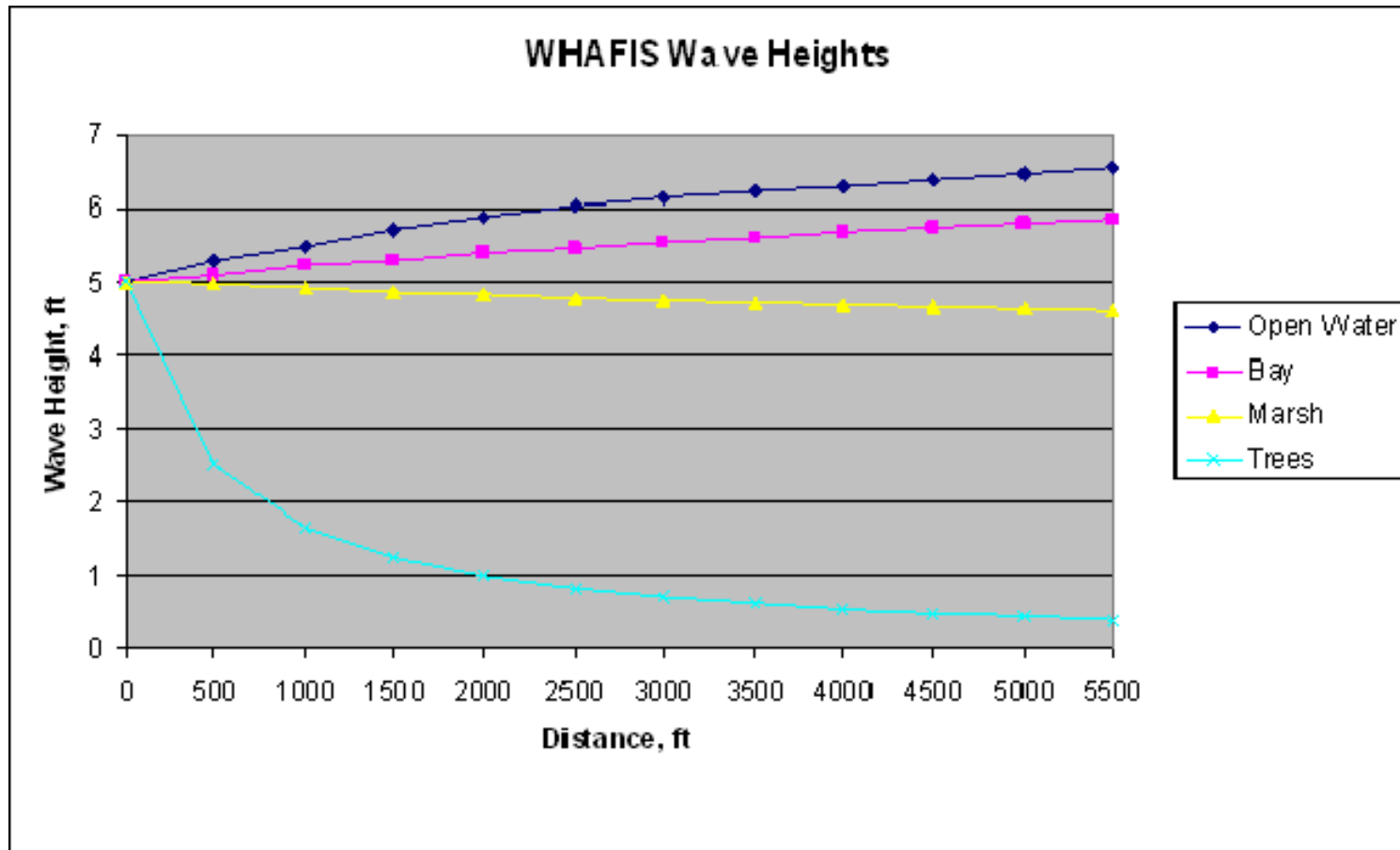
## Multiple Lines of Defense



Preservation of wetland habitat and simultaneously providing flood protection for the residents of the parish is complex; requiring the full development of all of the components of the multiple lines of Defense.



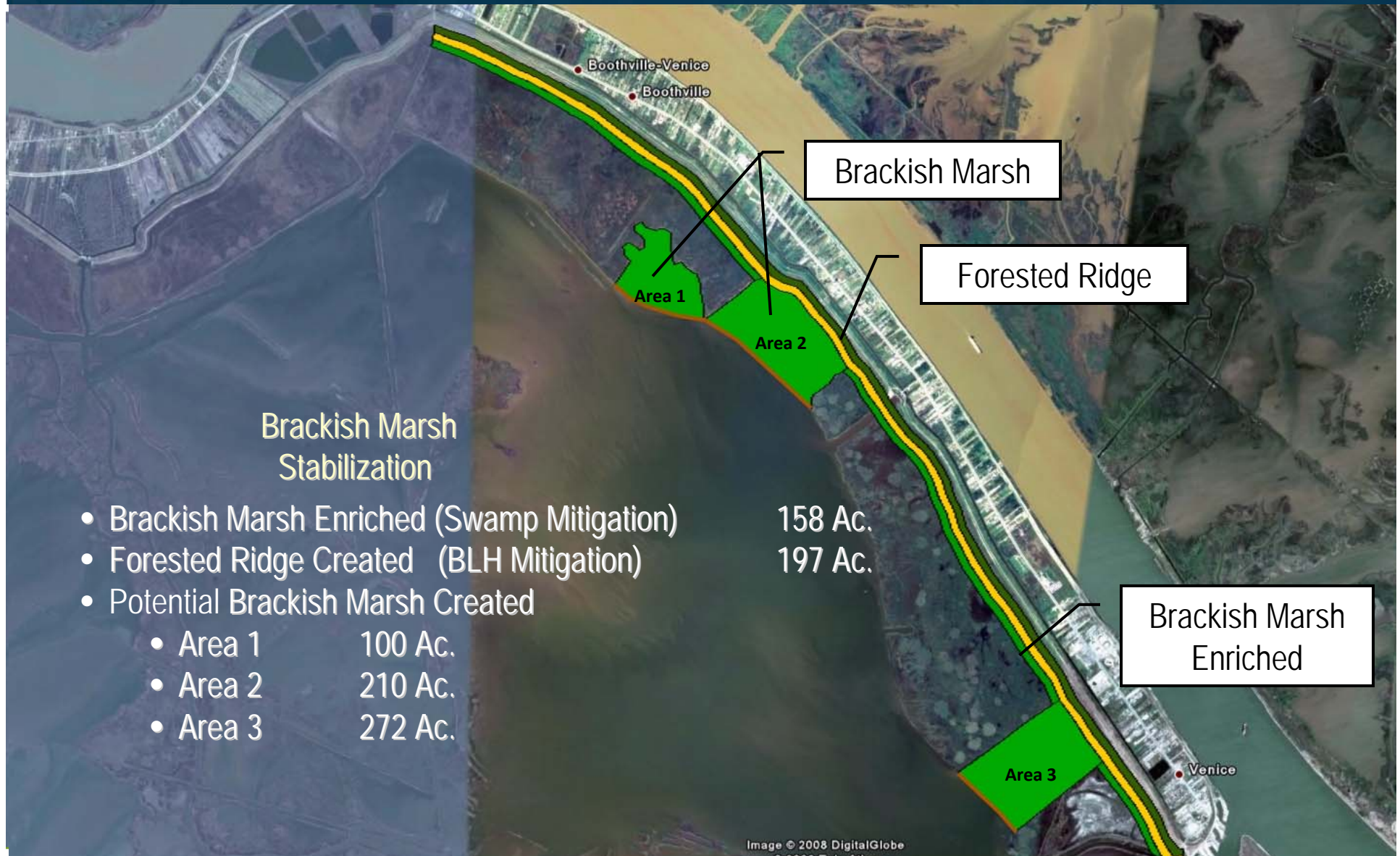
# Coastal Restoration in Plaquemines Parish



Modeling has shown that tree barriers significantly reduce wave action.



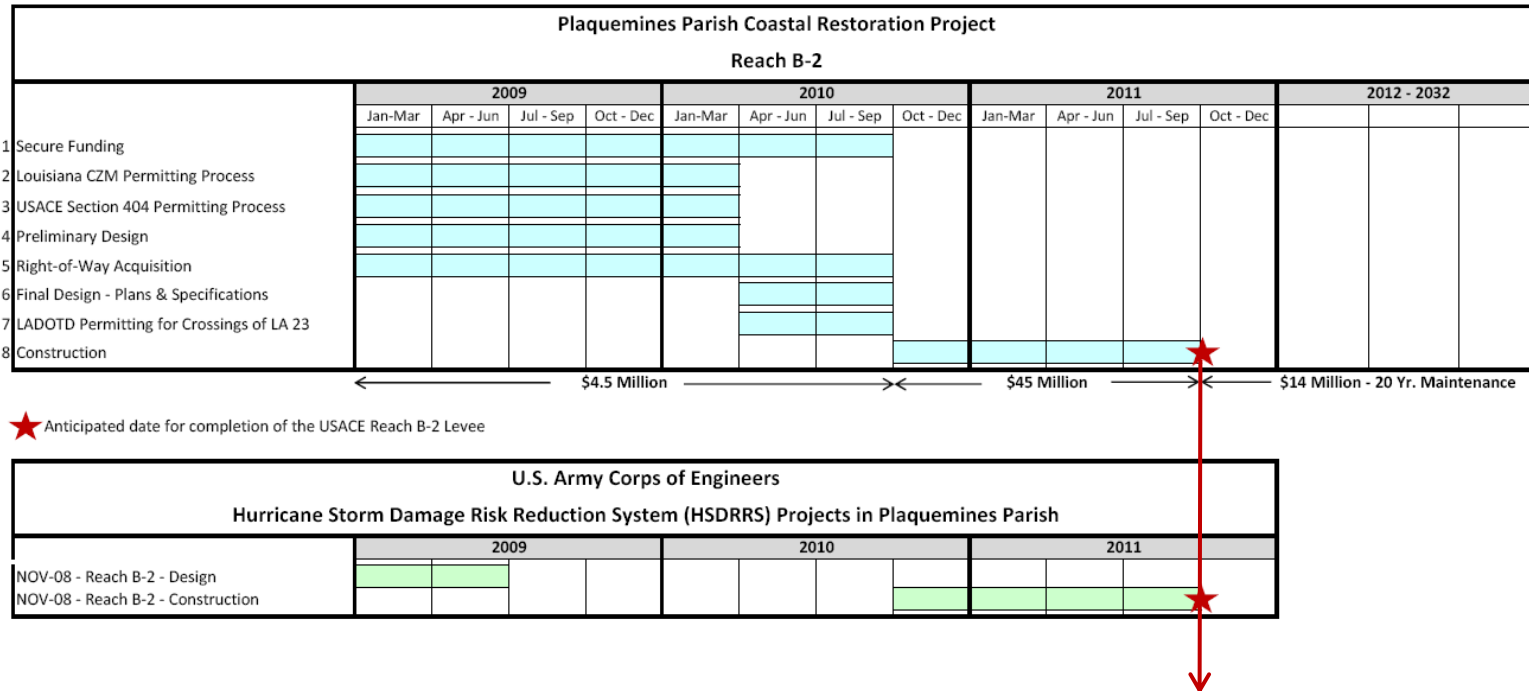
## Forested Ridge: Reach B-2 Boothville to Venice – First Site of Implementation







# Project Schedule



The parish is seeking to have the Forested Ridge Pilot initiative completed simultaneously with the Corps' Reach B-2 levee improvements.  
(Currently, September, 2011).



# Dredging Rates: Single Contract versus Long-Term Lease

<b>2 Year Leased Dredge</b>		
<b>Comparison of Leased Dredge to Standard Unit Price Contracts</b>		
	<b>New Parish Leased Dredge (Electric)</b>	<b>Spot Market Unit Price Contracts</b>
Dredge Depth (ft)	90	90
Dredge Cutter Power (HP)	2,750	1,900
Dredge Productivity (Cys/mo)	1,500,000	1,250,000
Dredge Installed Power (HP)	15,100	12,200
Dredge Pump Power (HP)	12,000	8,600
Discharge Length (ft)	40,000	40,000
Mobilizations / Year	0.5	2.0
Annual Mobilization Cost	\$925,000	\$5,000,000
Estimated Dredge days / year	275	275
Dredge Total Cost (2 Years)	\$70,600,000	\$109,000,000
Procurement Cost (%of contract)	5.0%	8.0%
Procurement Cost / Contract	\$3,530,000	\$2,180,000
Procurement Cost	\$3,530,000	\$8,720,000
Total Cost to Parish	\$77,660,000	\$119,900,000
Cubic Yards Moved	27,123,258	22,602,715
<b>Average Cost / Cy</b>	<b>\$2.86</b>	<b>\$5.30</b>
<b>% of Unit Price Market</b>	<b>54%</b>	<b>100%</b>

Note: This table contains the cost comparison and unit prices used in the development of cost estimates for the Forested Ridge/Wetland Enrichment projects in Plaquemines Parish.

Plaquemines' plan calls for the utilization of a long-term leased dredge specifically designed for the Mississippi River, which will have significant cost savings for B-2 and future projects.



## Plaquemines Parish has plan for immediate action

